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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/857,552	06/05/2001	Gary Robert Burg	FKL 2 089 (1	5024
26781	7590	07/14/2004	EXAMINER	
BROUSE MCDOWELL INTELLECTUAL PROPERTY GROUP 500 FIRST NATIONAL TOWER AKRON, OH 44308			FONTAINE, MONICA A	
			ART UNIT	PAPER NUMBER
			1732	

DATE MAILED: 07/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 09/857,552	Applicant(s) BURG ET AL.	
	Examiner Monica A Fontaine	Art Unit 1732	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 15 June 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 3-6 and 9-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 3-6 and 9-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

This office action is in response to the Amendment filed 15 May 2004.

The previous rejections have been withdrawn due to applicant's amendment.

#### ***Claim Rejections - 35 USC § 112***

Claim 9 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification does not describe a screw which remains stationary as it moves rubber from a feed end to a discharge end; on the contrary, the specification clearly describes a screw which moves (i.e. rotates) during said moving process (See specification, Page 3, lines 15-19).

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 9-11 and 3-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over McCormick et al.<sup>1</sup> (U.S. Patent 3,445,890), in view of Geyer (U.S. Patent 4,891,364). Regarding Claim 9, McCormick shows that it is known to have an extruder screw and flow channel head assembly (Abstract) comprising an extruder having a cylindrical barrel with a feed end and a discharge end (Figure 1, elements 1, 2, 5, 6), said discharge end being attached to a flow channel head containing a flow channel for carrying molten material from said extruder to a suitable die (Figure 1, element 8), a screw nose on said extruder screw positioned in a transition space at said discharge end of said barrel wherein said screw nose has a radially expanding upstream portion providing a conical surface of increasing diameter in the direction of flow of said material for maintaining said material in working engagement with said screw nose (Figure 1, elements 3, 4; Figure 2, element 38), and the cylinder wall of said cylindrical barrel having a constant diameter (Figure 1, element 3). McCormick does not show explicitly using rubber as the process material, nor does he teach holding the screw stationary during the feeding operation. Geyer shows that it is known to have an extruder screw and flow channel, wherein the process material is rubber (Abstract; It is noted that Geyer discloses in Column 4, lines 44-47 that rubber or thermoplastic material may be used.) and wherein the screw remains stationary as it moves said rubber from said feed and to said discharge end (Column 2, lines 10-13). Geyer and McCormick are combinable because they are concerned with a similar technical field, namely, that of extruder screw and flow channels. It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Geyer's process material and stationary screw in

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<sup>1</sup> It is noted that the front page of US 3,445,890 identifies the inventive entity as "E.E. Heston et al.", but in order to be consistent with patent data on the PTO-892, the examiner will refer to US 3,445,890 as "McCormick et al.", hereafter "McCormick".

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McCormick's extruder screw and flow channel to prevent "blips" as formed by a rotating screw (See Geyer, Column 2, lines 12-13).

Regarding Claim 10, McCormick shows the apparatus as claimed as discussed in the rejection of Claim 9 above, including a screw nose having a downstream portion with a conical surface of decreasing diameter in the direction of flow of said material spaced from an opposing wall of said flow channel head (Figure 2; It is noted that the phrase "to maintain working engagement of said material with said conical surface of said screw nose and said wall of said flow channel head whereby pressure on said rubber is maintained to prevent expansion of volatiles in said material" is being interpreted as a statement of intended use.). McCormick does not show a tapered wall of the flow channel head. Geyer shows that it is known to have an extruder flow channel head having a tapered wall that opposes a conical surface of a screw nose (Figure 1, elements 49, 60). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to replace McCormick's flow channel head with Geyer's tapered channel head in order to cause less turbulence in the flow of the molding material as it moves to the die.

Regarding Claim 11, McCormick shows the apparatus as claimed as discussed in the rejection of Claims 9 and 10 above, but he does not show a generally constant cross sectional area from a tapered flow channel head wall to the discharge area. Geyer shows that it is known to have an extruder flow channel characterized by a flow channel having a generally constant cross sectional area from a tapered wall of said flow channel head to a discharge end of said flow channel head (Figure 1, elements 49, 60; It is noted that the phrase "to maintain pressure on said rubber and provide time for volatiles in said material to be dissolved before ejection from said

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flow channel” is being interpreted as a statement of intended use.). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Geyer’s generally constant flow channel cross sectional area in McCormick’s flow channel head in order to cause less turbulence in the flow of the molding material as it moves to the die.

Regarding Claims 3 and 4, McCormick shows the apparatus as claimed as discussed in the rejection of Claim 9 above, including a screw nose having an upstream portion of increasing diameter whose conical surface is disposed at an angle appropriate for a specific process (Figure 1, elements 4, 38). Although not explicitly stated in McCormick and absent unexpected results for the claimed angles, it would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to change the angle (i.e. the size and/or proportion) of the conical surface of the screw nose’s upstream portion in order to accommodate varying materials or desired product characteristics (*In re Rose*, 105 USPQ 237; *In re Reven*, 156 USPQ 679; *In re Reese*, 129 USPQ 402; *In re Russell*, 169 USPQ 426).

Regarding Claims 5 and 6, McCormick shows the apparatus as claimed as discussed in the rejection of Claims 9 and 10 above, including a screw nose wherein the generally conical surface of said downstream portion is at an angle of 35° to 45° relative to the axis of the screw nose (Figure 2; It is noted that Claim 6’s “about 40°” can be interpreted very broadly to include angles, such as 44°.), meeting applicant’s claim.

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***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following patents are cited to further show the state of the art with regard to extruder screws and flow channels in general:

U.S. Patent 4,749,279 to Csongor

U.S. Patent 6,454,454 to Barr

U.S. Patent 6,547,431 to Womer

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monica A Fontaine whose telephone number is 571-272-1198. The examiner can normally be reached on Monday-Friday 7:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Colaanni can be reached on 571-272-1196. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*Maf*

Maf  
July 7, 2004

*Leo B. Tentoni*  
**LEO B. TENTONI**  
**PRIMARY EXAMINER**  
**ART UNIT 10732**